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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,187	09/25/2006	James Van Alstine	PU0418	7600
22840 7590 07/07/2009 GE HEALTHCARE BIO-SCIENCES CORP. PATENT DEPARTMENT 800 CENTENNIAL AVENUE PISCATAWAY, NJ 08855				
EXAMINER CHEU, CHANGHWAJ				
ART UNIT 1641		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/594,187

**Applicant(s)**

VAN ALSTINE ET AL.

**Examiner**

JACOB CHEU

**Art Unit**

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 18-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's amendment filed on 6/16/2009 has been received and entered into record and considered.

The following information provided in the amendment affects the instant application:

1. Claims 1-28 are pending.
2. Currently, claims 1-17 are under examination. Claims 18-28 are withdrawn from further consideration.
2. The Finality set forth in the Office Action mailed on 4/20/2009 is withdrawn because Shadle et al. do not disclose using non-ionic polyethylene glycol.
3. A new ground of rejection is set forth in this Office Action based on new reference.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3, 5-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shadle et al. (US 5429746) in view of Feng et al. (Biotech Technique 1998 Vol. 12, page 289-293).

Sahdle et al. teach a method of isolating target molecule, e.g. antibody. The method comprises using multiple steps of column chromatography (See Figure 1). Sahdle et al. teach isolating the target molecules by contacting samples with an affinity chromatography matrix and then ion-exchange followed by hydrophobic interaction chromatography matrix to isolate (elute) the target molecule in a separate fraction from the samples in the presence of ethylene or propylene glycol (See Figure 1 and Col. 2, line 57-60; Col. 7, line 55-62). However, Sahdle et al. do not disclose using non-ionic polyethylene glycol for isolation and purification of the target proteins.

Feng et al. teach that polyethylene glycol, a non-ionic polyether, is suitable for isolation and purification of target proteins. Feng et al. observe that using polyethylene glycol would provide advantages of protecting protein activity, improve purity and recovery of protein isolation (See page 289, left column, page 291, left column).

Therefore, it would have been prima facie obvious to one ordinary skill in the art at the time the invention was made to have motivated Shadle et al. to use non-ionic polyethylene glycol, such as taught by Feng et al., to isolate target proteins from samples. One ordinary skill in the art would have been motivated to do so in order to increase purity, recovery and activity of the target proteins.

With respect to claims 12-13, Shadle teach using protein A as a ligand on the matrix of the column for isolation (Col. 3, line 30-60).

With respect to claims 14-17, Shadle et al. teach using cross-linked polysaccharide particles, such as dextran as a matrix support in the ion-exchange column (Col. 1, line 30-40; claims 10 and 28).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shadle in view of Feng et al. and further in view of Bander et al. (US 20040120958).

Shadle and Feng et al. references have been discussed but no explicit teachings on using consecutive ion-exchange chromatography is disclosed.

Bander et al. teach using consecutive ion-exchange chromatography for isolation of antibodies (See Section 0374). It is well-known that performing several consecutive chromatography steps would enhance and improve the purity of antibodies.

Therefore, it would have been prima facie obvious to one ordinary skill in the art at the time the invention was made to have motivated Shadle and Feng et al. with consecutive ion-exchange chromatography as taught by Bander et al. to isolate antibodies for optimization and increasing purification, and such modification merely requires routine skill in the art.

#### ***Response to Applicant's Arguments***

5. The main argument raised by Applicant is the feature of using non-ionic polyethylene glycol which is not used in the Shadle et al. reference. Nevertheless, Examiner has cited Feng et al. reference in combination with Shadle et al. to remedy the deficiency. Furthermore, Feng et al. also provides motivation and suggestion to one ordinary skill in the art to combine with Shadle et al. teachings in isolating and purifying target proteins in the samples.

***Conclusion***

6. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB CHEU whose telephone number is (571)272-0814. The examiner can normally be reached on 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacob Cheu/  
Examiner, Art Unit 1641